



# DEW Three Scenarios

*There's a time when the operation of the machine becomes so odious, makes you so sick at heart, that you can't take part, you can't even passively take part, and you've got to put your bodies upon the gears and upon the wheels, upon the levers, upon all the apparatus, and you've got to make it stop!*

—Mario Savio, Berkeley Free Speech Movement

*To gain what is worth having, it may be necessary to lose everything else.*

—Bernadette Devlin, Irish activist and politician

## BRINGING IT DOWN: COLLAPSE SCENARIOS

At this point in history, there are no good short-term outcomes for global human society. Some are better and some are worse, and in the long term some are very good, but in the short term we're in a bind. I'm not going to lie to you—the hour is too late for cheermongering. The only way to find the best outcome is to confront our dire situation head on, and not to be diverted by false hopes.

Human society—because of civilization, specifically—has painted itself into a corner. As a species we're dependent on the draw down of finite supplies of oil, soil, and water. Industrial agriculture (and annual grain agriculture before that) has put us into a vicious pattern of population growth and overshoot. We long ago exceeded carrying capacity, and the workings of civilization are destroying that carrying capacity by the second. This is largely the fault of those in power, the wealthiest, the states and corporations. But the consequences—and the responsibility for dealing with it—fall to the rest of us, including nonhumans.

Physically, it's not too late for a crash program to limit births to reduce the population, cut fossil fuel consumption to nil, replace agricultural monocrops with perennial polycultures, end overfishing, and cease industrial encroachment on (or destruction of) remaining wild areas. There's no physical reason we couldn't start all of these things tomorrow, stop global warming in its tracks, reverse overshoot, reverse erosion, reverse aquifer drawdown, and bring back all the species and biomes currently on the brink. There's no physical reason we couldn't get together and act like adults and fix these problems, in the sense that it isn't against the laws of physics.

But socially and politically, we know this is a pipe dream. There are material systems of power that make this impossible as long as those systems are still intact. Those in power get too much money and privilege from destroying the planet. We aren't going to save the planet—or our own future as a species—without a fight.

What's realistic? What options are actually available to us, and what are the consequences? What follows are three broad and illustrative scenarios: one in which there is no substantive or decisive resistance, one in which there is limited resistance and a relatively prolonged collapse, and one in which all-out resistance leads to the immediate collapse of civilization and global industrial infrastructure.

## NO RESISTANCE

If there is no substantive resistance, likely there will be a few more years of business as usual, though with increasing economic disruption and upset. According to the best available data, the impacts of peak oil start to hit somewhere between 2011 and 2015, resulting in a rapid decline in global energy availability.<sup>1</sup> It's possible that this may happen slightly later if all-out attempts are made to extract remaining fossil fuels, but that would only prolong the inevitable, worsen global warming, and make the eventual decline that much steeper and more severe. Once peak oil sets in, the increasing cost and decreasing supply of energy undermines manufacturing and transportation, especially on a global scale.

The energy slide will cause economic turmoil, and a self-perpetuating cycle of economic contraction will take place. Businesses will be unable to pay their workers, workers will be unable to buy things, and more companies will shrink or go out of business (and will be unable to pay their workers). Unable to pay their debts and mortgages, homeowners, companies, and even states will go bankrupt. (It's possible that this process has already begun.) International trade will nosedive because of a global depression and increasing transportation and manufacturing costs. Though it's likely that the price of oil will increase over time, there will be times when the contracting economy causes falling demand for oil, thus suppressing the price. The lower cost of oil may, ironically but beneficially, limit investment in new oil infrastructure.

At first the collapse will resemble a traditional recession or depression, with the poor being hit especially hard by the increasing costs of basic goods, particularly of electricity and heating in cold areas. After a few years, the financial limits will become physical ones; large-scale energy-intensive manufacturing will become not only uneconomical, but impossible.

A direct result of this will be the collapse of industrial agriculture. Dependent on vast amounts of energy for tractor fuel, synthesized pesticides and fertilizers, irrigation, greenhouse heating, packaging, and transportation, global industrial agriculture will run up against hard limits to production (driven at first by intense competition for energy from other sectors). This will be worsened by the depletion of groundwater and aquifers, a long history of soil erosion, and the early

stages of climate change. At first this will cause a food and economic crisis mostly felt by the poor. Over time, the situation will worsen and industrial food production will fall below that required to sustain the population.

There will be three main responses to this global food shortage. In some areas people will return to growing their own food and build sustainable local food initiatives. This will be a positive sign, but public involvement will be belated and inadequate, as most people still won't have caught on to the permanency of collapse and won't want to have to grow their own food. It will also be made far more difficult by the massive urbanization that has occurred in the last century, by the destruction of the land, and by climate change. Furthermore, most subsistence cultures will have been destroyed or uprooted from their land—land inequalities will hamper people from growing their own food (just as they do now in the majority of the world). Without well-organized resisters, land reform will not happen, and displaced people will not be able to access land. As a result, widespread hunger and starvation (worsening to famine in bad agricultural years) will become endemic in many parts of the world. The lack of energy for industrial agriculture will cause a resurgence in the institutions of slavery and serfdom.

Slavery does not occur in a political vacuum. Threatened by economic and energy collapse, some governments will fall entirely, turning into failed states. With no one to stop them, warlords will set up shop in the rubble. Others, desperate to maintain power against emboldened secessionists and civil unrest, will turn to authoritarian forms of government. In a world of diminishing but critical resources, governments will get leaner and meaner. We will see a resurgence of authoritarianism in modern forms: technofascism and corporation feudalism. The rich will increasingly move to private and well-defended enclaves. Their country estates will not look apocalyptic—they will look like eco-Edens, with well-tended organic gardens, clean private lakes, and wildlife refuges. In some cases these enclaves will be tiny, and in others they could fill entire countries.

Meanwhile, the poor will see their own condition worsen. The millions of refugees created by economic and energy collapse will be on the move, but no one will want them. In some brittle areas the influx of refugees will overwhelm basic services and cause a local collapse, resulting in cascading waves of refugees radiating from collapse and disaster epicenters. In some areas refugees will be turned back by force of arms. In other areas, racism and discrimination will come to the fore as an excuse for authoritarians to put marginalized people and dissidents in “special settlements,” leaving more resources for the privileged.<sup>2</sup> Desperate people will be the only candidates for the dangerous and dirty manual labor required to keep industrial manufacturing going once the energy supply dwindles. Hence, those in power will consider autonomous and self-sustaining communities a threat to their labor supply, and suppress or destroy them.

Despite all of this, technological “progress” will not yet stop. For a time it will continue in fits and starts, although humanity will be split into increasingly divergent groups. Those on the bottom will be unable to meet their basic subsistence needs, while those on the top will attempt to live lives of privilege as they had in the past, even seeing some technological advancements, many of which will be intended to cement the superiority of those in power in an increasingly crowded and hostile world.

Technofascists will develop and perfect social control technologies (already currently in their early stages): autonomous drones for surveillance and assassination; microwave crowd-control devices; MRI-assisted brain scans that will allow for infallible lie detection, even mind reading and torture. There will be no substantive organized resistance in this scenario, but in each year that passes the technofascists will make themselves more and more able to destroy resistance even in its smallest expression. As time slips by, the window of opportunity for resistance will swiftly close. Technofascists of the early to mid-twenty-first century will have technology for coercion and surveillance that will make the most practiced of the Stasi or the SS look like rank amateurs. Their ability to debase humanity will make their predecessors appear saintly by comparison.

Not all governments will take this turn, of course. But the authoritarian governments—those that will continue ruthlessly exploiting people and resources regardless of the consequences—will have more sway and more muscle, and will take resources from their neighbors and failed states as they please. There will be no one to stop them. It won't matter if you are the most sustainable eco-village on the planet if you live next door to an eternally resource-hungry fascist state.

Meanwhile, with industrial powers increasingly desperate for energy, the tenuous remaining environmental and social regulations will be cast aside. The worst of the worst, practices like drilling offshore and in wildlife refuges, and mountaintop removal for coal will become commonplace. These will be merely the dregs of prehistoric energy reserves. The drilling will only prolong the endurance of industrial civilization for a matter of months or years, but ecological damage will be long-term or permanent (as is happening in the Arctic National Wildlife Refuge). Because in our scenario there is no substantive resistance, this will all proceed unobstructed.

Investment in renewable industrial energy will also take place, although it will be belated and hampered by economic challenges, government bankruptcies, and budget cuts.<sup>3</sup> Furthermore, long-distance power transmission lines will be insufficient and crumbling from age. Replacing and upgrading them will prove difficult and expensive. As a result, even once in place, electric renewables will only produce a tiny fraction of the energy produced by petroleum. That electric energy will not be suitable to run the vast majority of tractors, trucks, and other vehicles or similar infrastructure.

As a consequence, renewable energy will have only a minimal moderating affect on the energy cliff. In fact, the energy invested in the new infrastructure will take years to pay itself back with electricity generated. Massive infrastructure upgrades will actually steepen the energy cliff by decreasing the amount of energy available for daily activities. There will be a constant struggle to allocate limited supplies of energy under successive crises. There will be some rationing to prevent riots, but most energy (regardless of the source) will go to governments, the military, corporations, and the rich.

Energy constraints will make it impossible to even attempt any full-scale infrastructure overhauls like hydrogen economies (which wouldn't solve the problem anyway). Biofuels will take off in many areas, despite the fact that they mostly have a poor ratio of energy returned on energy invested (EROEI). The EROEI will be better in tropical countries, so remaining tropical forests will be massively logged to clear land for biofuel production. (Often, forests will be logged en masse simply to burn for fuel.) Heavy machinery will be too expensive for most plantations, so their labor will come from slavery and

serfdom under authoritarian governments and corporate feudalism. (Slavery is currently used in Brazil to log forests and produce charcoal by hand for the steel industry, after all.)<sup>4</sup> The global effects of biofuel production will be increases in the cost of food, increases in water and irrigation drawdown for agriculture, and worsening soil erosion. Regardless, its production will amount to only a small fraction of the liquid hydrocarbons available at the peak of civilization.

All of this will have immediate ecological consequences. The oceans, wracked by increased fishing (to compensate for food shortages) and warming-induced acidity and coral die-offs, will be mostly dead. The expansion of biofuels will destroy many remaining wild areas and global biodiversity will plummet. Tropical forests like the Amazon produce the moist climate they require through their own vast transpiration, but expanded logging and agriculture will cut transpiration and tip the balance toward permanent drought. Even where the forest is not actually cut, the drying local climate will be enough to kill it. The Amazon will turn into a desert, and other tropical forests will follow suit.

Projections vary, but it's almost certain that if the majority of the remaining fossil fuels are extracted and burned, global warming would become self-perpetuating and catastrophic. However, the worst effects will not be felt until decades into the future, once most fossil fuels have already been exhausted. By then, there will be very little energy or industrial capacity left for humans to try to compensate for the effects of global warming.

Furthermore, as intense climate change takes over, ecological remediation through perennial polycultures and forest replanting will become impossible. The heat and drought will turn forests into net carbon emitters, as northern forests die from heat, pests, and disease, and then burn in continent-wide fires that will make early twenty-first century conflagrations look minor.<sup>5</sup> Even intact pastures won't survive the temperature extremes as carbon is literally baked out of remaining agricultural soils.

Resource wars between nuclear states will break out. War between the US and Russia is less likely than it was in the Cold War, but ascending superpowers like China will want their piece of the global resource pie. Nuclear powers such as India and Pakistan will be densely populated and ecologically precarious; climate change will dry up major rivers previously fed by melting glaciers, and hundreds of millions of people in South Asia will live bare meters above sea level. With few resources to equip and field a mechanized army or air force, nuclear strikes will seem an increasingly effective action for desperate states.

If resource wars escalate to nuclear wars, the effects will be severe, even in the case of a "minor" nuclear war between countries like India and Pakistan. Even if each country uses only fifty Hiroshima-sized bombs as air bursts above urban centers, a nuclear winter will result.<sup>6</sup> Although lethal levels of fallout last only a matter of weeks, the ecological effects will be far more severe. The five megatons of smoke produced will darken the sky around the world. Stratospheric heating will destroy most of what remains of the ozone layer.<sup>7</sup> In contrast to the overall warming trend, a "little ice age" will begin immediately and last for several years. During that period, temperatures in major agricultural regions will routinely drop below freezing in summer. Massive and immediate starvation will occur around the world.

That's in the case of a small war. The explosive power of one hundred Hiroshima-sized bombs accounts for only 0.03 percent of the global arsenal. If a larger number of more powerful bombs are used—or if cobalt bombs are used to produce long-term irradiation and wipe out surface life—the effects will be even worse.<sup>8</sup> There will be few human survivors. The nuclear winter effect will be temporary, but the bombing and subsequent fires will put large amounts of carbon into the atmosphere, kill plants, and impair photosynthesis. As a result, after the ash settles, global warming will be even more rapid and worse than before.

Nuclear war or not, the long-term prospects are dim. Global warming will continue to worsen long after fossil fuels are exhausted. For the planet, the time to ecological recovery is measured in tens of millions of years, if ever.<sup>9</sup> As James Lovelock has pointed out, a major warming event could push the planet into a different equilibrium, one much warmer than the current one.<sup>10</sup> It's possible that large plants and animals might only be able to survive near the poles.<sup>11</sup> It's also possible that the entire planet could become essentially uninhabitable to large plants and animals, with a climate more like Venus than Earth.

All that is required for this to occur is for current trends to continue without substantive and effective resistance. All that is required for evil to succeed is for good people to do nothing. But this future is not inevitable.

## LIMITED RESISTANCE

What if some forms of limited resistance were undertaken? What if there was a serious aboveground resistance movement combined with a small group of underground networks working in tandem? (This still would not be a majority movement—this is extrapolation, not fantasy.) What if those movements combined their grand strategy? The abovegrounders would work to build sustainable and just communities wherever they were, and would use both direct and indirect action to try to curb the worst excesses of those in power, to reduce the burning of fossil fuels, to struggle for social and ecological justice. Meanwhile, the undergrounders would engage in limited attacks on infrastructure (often in tandem with aboveground struggles), especially energy infrastructure, to try to reduce fossil fuel consumption and overall industrial activity. The overall thrust of this plan would be to use selective attacks to accelerate collapse in a deliberate way, like shoving a rickety building.

If this scenario occurred, the first years would play out similarly. It would take time to build up resistance and to ally existing resistance groups into a larger strategy. Furthermore, civilization at the peak of its power would be too strong to bring down with only partial resistance. The years around 2011 to 2015 would still see the impact of peak oil and the beginning of an economic tailspin, but in this case there would be surgical attacks on energy infrastructure that limited new fossil fuel extraction (with a focus on the nastier practices like mountain-top removal and tar sands). Some of these attacks would be conducted by existing resistance groups (like MEND) and some by newer groups, including groups in the minority world of the rich and powerful. The increasing shortage of oil

would make pipeline and infrastructure attacks more popular with militant groups of all stripes. During this period, militant groups would organize, practice, and learn.

These attacks would not be symbolic attacks. They would be serious attacks designed to be effective but timed and targeted to minimize the amount of “collateral damage” on humans. They would mostly constitute forms of sabotage. They would be intended to cut fossil fuel consumption by some 30 percent within the first few years, and more after that. There would be similar attacks on energy infrastructure like power transmission lines. Because these attacks would cause a significant but incomplete reduction in the availability of energy in many places, a massive investment in local renewable energy (and other measures like passive solar heating or better insulation in some areas) would be provoked. This would set in motion a process of political and infrastructural decentralization. It would also result in political repression and real violence targeting those resisters.

Meanwhile, aboveground groups would be making the most of the economic turmoil. There would be a growth in class-consciousness and organization. Labor and poverty activists would increasingly turn to community sufficiency. Local food and self-sufficiency activists would reach out to people who have been pushed out of capitalism. The unemployed and underemployed—rapidly growing in number—would start to organize a subsistence and trade economy outside of capitalism. Mutual aid and skill sharing would be promoted. In the previous scenario, the development of these skills was hampered in part by a lack of access to land. In this scenario, however, aboveground organizers would learn from groups like the Landless Workers Movement in Latin America. Mass organization and occupation of lands would force governments to cede unused land for “victory garden”-style allotments, massive community gardens, and cooperative subsistence farms.

The situation in many third world countries could actually improve because of the global economic collapse. Minority world countries would no longer enforce crushing debt repayment and structural adjustment programs, nor would CIA goons be able to prop up “friendly” dictatorships. The decline of export-based economies would have serious consequences, yes, but it would also allow land now used for cash crops to return to subsistence farms. Industrial agriculture would falter and begin to collapse. Synthetic fertilizers would become increasingly expensive and would be carefully conserved where they are used, limiting nutrient runoff and allowing oceanic dead zones to recover. Hunger would be reduced by subsistence farming and by the shift of small farms toward more traditional work by hand and by draft horse, but food would be more valuable and in shorter supply.

Even a 50 percent cut in fossil fuel consumption wouldn’t stave off widespread hunger and die-off. As we have discussed, the vast majority of all energy used goes to nonessentials. In the US, the agricultural sector accounts for less than 2 percent of all energy use, including both direct consumption (like tractor fuel and electricity for barns and pumps) and indirect consumption (like synthetic fertilizers and pesticides).<sup>12</sup> That’s true even though industrial agriculture is incredibly inefficient and spends something like ten calories of fossil fuel energy for every food calorie produced. Residential energy consumption accounts for only 20 percent of US total usage, with industrial, commercial, and transportation consumption making up the majority of all consumption.<sup>13</sup> And most of that residential energy goes into household appliances like dryers, air conditioning, and water heating for inefficiently used water. The energy used for lighting and space heating could be itself

drastically reduced through trivial measures like lowering thermostats and heating the spaces people actually live in. (Most don't bother to do these now, but in a collapse situation they will do that and more.)

Only a small fraction of fossil fuel energy actually goes into basic subsistence, and even that is used inefficiently. A 50 percent decline in fossil fuel energy could be readily adapted to form a subsistence perspective (if not financial one). Remember that in North America, 40 percent of all food is simply wasted. Of course, poverty and hunger have much more to do with power over people than with the kind of power measured in watts. Even now at the peak of energy consumption, a billion people go hungry. So if people are hungry or cold because of selective militant attacks on infrastructure, that will be a direct result of the actions of those in power, not of the resisters.

In fact, even if you want humans to be able to use factories to build windmills and use tractors to help grow food over the next fifty years, forcing an immediate cut in fossil fuel consumption should be at the top of your to-do list. Right now most of the energy is being wasted on plastic junk, too-big houses for rich people, bunker buster bombs, and predator drones. The only way to ensure there is some oil left for basic survival transitions in twenty years is to ensure that it isn't being squandered now. The US military is the single biggest oil user in the world. Do you want to have to tell kids twenty years from now that they don't have enough to eat because all the energy was spent on pointless neocolonial wars?

Back to the scenario. In some areas, increasingly abandoned suburbs (unlivable without cheap gas) would be taken over, as empty houses would become farmhouses, community centers, and clinics, or would be simply dismantled and salvaged for material. Garages would be turned into barns—most people couldn't afford gasoline anyway—and goats would be grazed in parks. Many roads would be torn up and returned to pasture or forest. These reclaimed settlements would not be high-tech. The wealthy enclaves may have their solar panels and electric windmills, but most unemployed people wouldn't be able to afford such things. In some cases these communities would become relatively autonomous. Their social practices and equality would vary based on the presence of people willing to assert human rights and social justice. People would have to resist vigorously whenever racism and xenophobia are used as excuses for injustice and authoritarianism.

Attacks on energy infrastructure would become more common as oil supplies diminish. In some cases, these attacks would be politically motivated, and in others they would be intended to tap electricity or pipelines for poor people. These attacks would steepen the energy slide initially. This would have significant economic impacts, but it would also turn the tide on population growth. The world population would peak sooner, and peak population would be smaller (by perhaps a billion) than it was in the "no resistance" scenario. Because a sharp collapse would happen earlier than it otherwise would have, there would be more intact land in the world per person, and more people who still know how to do subsistence farming. The presence of an organized militant resistance movement would provoke a reaction from those in power. Some of them would use resistance as an excuse to seize more power to institute martial law or overt fascism. Some of them would make use of the economic and social crises rippling across the globe. Others wouldn't need an excuse.



Authoritarians would seize power where they could, and try to in almost every country. However, they would be hampered by aboveground and underground resistance, and by decentralization and the emergence of autonomous communities. In some countries, mass mobilizations would stop potential dictators. In others, the upsurge in resistance would dissolve centralized state rule, resulting in the emergence of regional confederations in some places and in warlords in others. In unlucky countries, authoritarianism would take power. The good news is that people would have resistance infrastructure in place to fight and limit the spread of authoritarians, and authoritarians would have not developed as much technology of control as they did in the “no resistance” scenario.

There would still be refugees flooding out of many areas (including urban areas). The reduction in greenhouse gas emissions caused by attacks on industrial infrastructures would reduce or delay climate catastrophe. Networks of autonomous subsistence communities would be able to accept and integrate some of these people. In the same way that rooted plants can prevent a landslide on a steep slope, the cascades of refugees would be reduced in some areas by willing communities. In other areas, the numbers of refugees would be too much to cope with effectively.<sup>14</sup>

The development of biofuels (and the fate of tropical forests) is uncertain. Remaining centralized states—though they may be smaller and less powerful—would still want to squeeze out energy from wherever they could. Serious militant resistance—in many cases insurgency and guerilla warfare—would be required to stop industrialists from turning tropical forests into plantations or extracting coal at any cost. In this scenario, resistance would still be limited, and it is questionable whether that level of militancy would be effectively mustered.

This means that the long-term impacts of the greenhouse effect would be uncertain. Fossil fuel burning would have to be kept to an absolute minimum to avoid a runaway greenhouse effect. That could prove very difficult.

But if a runaway greenhouse effect could be avoided, many areas could be able to recover rapidly. A return to perennial polycultures, implemented by autonomous communities, could help reverse the greenhouse effect. The oceans would look better quickly, aided by a reduction in industrial fishing and the end of the synthetic fertilizer runoff that creates so many dead zones now.

The likelihood of nuclear war would be much lower than in the “no resistance” scenario. Refugee cascades in South Asia would be diminished. Overall resource consumption would be lower, so resource wars would be less likely to occur. And militaristic states would be weaker and fewer in number. Nuclear war wouldn’t be impossible, but if it did happen, it could be less severe.

There are many ways in which this scenario is appealing. But it has problems as well, both in implementation and in plausibility. One problem is with the integration of aboveground and underground action. Most aboveground environmental organizations are currently opposed to any kind of militancy. This could hamper the possibility of strategic cooperation between underground militants and aboveground groups that could mobilize greater numbers. (It would also doom our aboveground groups to failure as their record so far demonstrates.)

It's also questionable whether the cut in fossil fuel consumption described here would be sufficient to avoid runaway global warming. If runaway global warming does take place, all of the beneficial work of the abovegrounders would be wiped out. The converse problem is that a steeper decline in fossil fuel consumption would very possibly result in significant human casualties and deprivation. It's also possible that the mobilization of large numbers of people to subsistence farming in a short time is unrealistic. By the time most people are willing to take that step, it could be too late.

So while in some ways this scenario represents an ideal compromise—a win-win situation for humans and the planet—it could just as easily be a lose-lose situation without serious and timely action. That brings us to our last scenario, one of all-out resistance and attacks on infrastructure intended to guarantee the survival of a livable planet.

## ALL-OUT ATTACKS ON INFRASTRUCTURE

In this final scenario, militant resistance would have one primary goal: to reduce fossil fuel consumption (and hence, all ecological damage) as immediately and rapidly as possible. A 90 percent reduction would be the ballpark target. For militants in this scenario, impacts on civilized humans would be secondary.

Here's their rationale in a nutshell: Humans aren't going to do anything in time to prevent the planet from being destroyed wholesale. Poor people are too preoccupied by primary emergencies, rich people benefit from the status quo, and the middle class (rich people by global standards) are too obsessed with their own entitlement and the technological spectacle to do anything. The risk of runaway global warming is immediate. A drop in the human population is inevitable, and fewer people will die if collapse happens sooner.

Think of it like this. We know we are in overshoot as a species. That means that a significant portion of the people now alive may have to die before we are back under carrying capacity. And that disparity is growing by the day. Every day carrying capacity is driven down by hundreds of thousands of humans, and every day the human population increases by more than 200,000.<sup>15</sup> The people added to the overshoot each day are needless, pointless deaths. Delaying collapse, they argue, is itself a form of mass murder.

Furthermore, they would argue, humans are only one species of millions. To kill millions of species for the benefit of one is insane, just as killing millions of people for the benefit of one person would be insane. And since unimpeded ecological collapse would kill off humans anyway, those species will ultimately have died for nothing, and the planet will take millions of years to recover. Therefore, those of us who care about the future of the planet have to dismantle the industrial energy infrastructure as rapidly as possible. We'll all have to deal with the social consequences as best we can. Besides, rapid collapse is ultimately good for humans—even if there is a partial die-off—because at least some people survive. And remember, the people who need the system to come down the most are the rural poor in the majority of the world: the faster the actionists can bring down industrial civilization, the

better the prospects for those people and their landbases. Regardless, without immediate action, everyone dies.

In this scenario, well-organized underground militants would make coordinated attacks on energy infrastructure around the world. These would take whatever tactical form militants could muster—actions against pipelines, power lines, tankers, and refineries, perhaps using electromagnetic pulses (EMPs) to do damage. Unlike in the previous scenario, no attempt would be made to keep pace with aboveground activists. The attacks would be as persistent as the militants could manage. Fossil fuel energy availability would decline by 90 percent. Greenhouse gas emissions would plummet.

The industrial economy would come apart. Manufacturing and transportation would halt because of frequent blackouts and tremendously high prices for fossil fuels. Some, perhaps most, governments would institute martial law and rationing. Governments that took an authoritarian route would be especially targeted by militant resisters. Other states would simply fail and fall apart.

In theory, with a 90 percent reduction in fossil fuel availability, there would still be enough to aid basic survival activities like growing food, heating, and cooking. Governments and civil institutions could still attempt a rapid shift to subsistence activities for their populations, but instead, militaries and the very wealthy would attempt to suck up virtually all remaining supplies of energy. In some places, they would succeed in doing so and widespread hunger would result. In others, people would refuse the authority of those in power. Most existing large-scale institutions would simply collapse, and it would be up to local people to either make a stand for human rights and a better way of life or give in to authoritarian power. The death rate would increase, but as we have seen in examples from Cuba and Russia, civic order can still hold despite the hardships.

What happens next would depend on a number of factors. If the attacks could persist and oil extraction were kept minimal for a prolonged period, industrial civilization would be unlikely to reorganize itself.

Well-guarded industrial enclaves would remain, escorting fuel and resources under arms. If martial law succeeded in stopping attacks after the first few waves (something it has been unable to do in, for example, Nigeria), the effects would be uncertain. In the twentieth century, industrial societies have recovered from disasters, as Europe did after World War II. But this would be a different situation. For most areas, there would be no outside aid. Populations would no longer be able to outrun the overshoot currently concealed by fossil fuels. That does not mean the effects would be the same everywhere; rural and traditional populations would be better placed to cope.

In most areas, reorganizing an energy-intense industrial civilization would be impossible. Even where existing political organizations persist, consumption would drop. Those in power would be unable to project force over long distances, and would have to mostly limit their activities to nearby areas. This means that, for example, tropical biofuel plantations would not be feasible. The same goes for tar sands and mountain-top removal coal mining. The construction of new large-scale infrastructure would simply not be possible.

Though the human population would decline, things would look good for virtually every other species. The oceans would begin to recover rapidly. The same goes for damaged wilderness areas. Because greenhouse emissions would have been reduced to a tiny fraction of their previous levels, runaway global warming would likely be averted. In fact, returning forests and grasslands would sequester carbon, helping to maintain a livable climate.

Nuclear war would be unlikely. Diminished populations and industrial activities would reduce competition between remaining states. Resource limitations would be largely logistical in nature, so escalating resource wars over supplies and resource-rich areas would be pointless.

This scenario, too, has its implementation and plausibility caveats. It guarantees a future for both the planet and the human species. This scenario would save trillions upon trillions upon trillions of living creatures. Yes, it would create hardship for the urban wealthy and poor, though most others would be better off immediately. It would be an understatement to call such a concept unpopular (although the militants in this scenario would argue that fewer people will die than in the case of runaway global warming or business as usual).

There is also the question of plausibility. Could enough ecologically motivated militants mobilize to enact this scenario? No doubt for many people the second, more moderate scenario seems both more appealing and more likely.

There is of course an infinitude of possible futures we could describe. We will describe one more possible future, a combination of the previous two, in which a resistance movement embarks on a strategy of Decisive Ecological Warfare.

## DECISIVE ECOLOGICAL WARFARE STRATEGY

### Goals

The ultimate goal of the primary resistance movement in this scenario is simply a living planet—a planet not just living, but in recovery, growing more alive and more diverse year after year. A planet on which humans live in equitable and sustainable communities without exploiting the planet or each other.

Given our current state of emergency, this translates into a more immediate goal, which is at the heart of this movement's grand strategy :

**Goal 1** : To disrupt and dismantle industrial civilization; to thereby remove the ability of the powerful to exploit the marginalized and destroy the planet.

This movement's second goal both depends on and assists the first:

**Goal 2** : To defend and rebuild just, sustainable, and autonomous human communities, and, as part of that, to assist in the recovery of the land. To accomplish these goals requires several broad strategies

involving large numbers of people in many different organizations, both aboveground and underground. The primary strategies needed in this theoretical scenario include the following:

**Strategy A :** Engage in direct militant actions against industrial infrastructure, especially energy infrastructure.

**Strategy B :** Aid and participate in ongoing social and ecological justice struggles; promote equality and undermine exploitation by those in power.

**Strategy C :** Defend the land and prevent the expansion of industrial logging, mining, construction, and so on, such that more intact land and species will remain when civilization does collapse.

**Strategy D :** Build and mobilize resistance organizations that will support the above activities, including decentralized training, recruitment, logistical support, and so on.

**Strategy E :** Rebuild a sustainable subsistence base for human societies (including perennial polycultures for food) and localized, democratic communities that uphold human rights.

In describing this alternate future scenario, we should be clear about some shorthand phrases like “actions against industrial infrastructure.” Not all infrastructure is created equal, and not all actions against infrastructure are of equal priority, efficacy, or moral acceptability to the resistance movements in this scenario. As Derrick wrote in *Endgame*, you can’t make a moral argument for blowing up a children’s hospital. On the other hand, you can’t make a moral argument against taking out cell phone towers. Some infrastructure is easy, some is hard, and some is harder.

On the same theme, there are many different mechanisms driving collapse, and they are not all equal or equally desirable. In the Decisive Ecological Warfare scenario, some of the mechanisms are intentionally accelerated and encouraged, while others are slowed or reduced. For example, energy decline by decreasing consumption of fossil fuels is a mechanism of collapse highly beneficial to the planet and (especially in the medium to long term) humans, and that mechanism is encouraged. On the other hand, ecological collapse through habitat destruction and biodiversity crash is also a mechanism of collapse (albeit one that takes longer to affect humans), and that kind of collapse is slowed or stopped whenever and wherever possible.

Collapse, in the most general terms, is a rapid loss of complexity.<sup>16</sup> It is a shift toward smaller and more decentralized structures—social, political, economic—with less social stratification, regulation, behavioral control and regimentation, and so on.<sup>17</sup> Major mechanisms of collapse include (in no particular order):

- Energy decline as fossil fuel extraction peaks, and a growing, industrializing population drives down per capita availability.
- Industrial collapse as global economies of scale are ruined by increasing transport and manufacturing costs, and by economic decline.
- Economic collapse as global corporate capitalism is unable to maintain growth and basic operations.

- Climate change causing ecological collapse, agricultural failure, hunger, refugees, disease, and so on.
- Ecological collapse of many different kinds driven by resource extraction, destruction of habitat, crashing biodiversity, and climate change.
- Disease, including epidemics and pandemics, caused by crowded living conditions and poverty, along with bacteria diseases increasingly resistant to antibiotics.
- Food crises caused by the displacement of subsistence farmers and destruction of local food systems, competition for grains by factory farms and biofuels, poverty, and physical limits to food production because of drawdown.
- Drawdown as the accelerating consumption of finite supplies of water, soil, and oil leads to rapid exhaustion of accessible supplies.
- Political collapse as large political entities break into smaller groups, secessionists break away from larger states, and some states go bankrupt or simply fail.
- Social collapse as resource shortages and political upheaval break large, artificial group identities into smaller ones (sometimes based along class, ethnic, or regional affinities), often with competition between those groups.
- War and armed conflict, especially resource wars over remaining supplies of finite resources and internal conflicts between warlords and rival factions.
- Crime and exploitation caused by poverty and inequality, especially in crowded urban areas.
- Refugee displacement resulting from spontaneous disasters like earthquakes and hurricanes, but worsened by climate change, food shortages, and so on.

In this scenario, each negative aspect of the collapse of civilization has a reciprocal trend that the resistance movement encourages. The collapse of large authoritarian political structures has a countertrend of emerging small-scale participatory political structures. The collapse of global industrial capitalism has a countertrend of local systems of exchange, cooperation, and mutual aid. And so on. Generally speaking, in this alternate future, a small number of underground people bring down the big bad structures, and a large number of aboveground people cultivate the little good structures.

In his book *The Collapse of Complex Societies*, Joseph Tainter argues that a major mechanism for collapse has to do with societal complexity. Complexity is a general term that includes the number of different jobs or roles in society (e.g., not just healers but epidemiologists, trauma surgeons, gerontologists, etc.), the size and complexity of political structures (e.g., not just popular assemblies but vast sprawling bureaucracies), the number and complexity of manufactured items and technology (e.g., not just spears, but many different calibers and types of bullets), and so on. Civilizations tend to try to use complexity to address problems, and as a result their complexity increases over time.

But complexity has a cost. The decline of a civilization begins when the costs of complexity begin to exceed the benefits—in other words, when increased complexity begins to offer declining returns. At that point, individual people, families, communities, and political and social subunits have a disincentive to participate in that civilization. The complexity keeps increasing, yes, but it keeps

getting more expensive. Eventually the ballooning costs force that civilization to collapse, and people fall back on smaller and more local political organizations and social groups.

Part of the job of the resistance movement is to increase the cost and decrease the returns of empire-scale complexity. This doesn't require instantaneous collapse or global dramatic actions. Even small actions can increase the cost of complexity and accelerate the good parts of collapse while tempering the bad.

Part of Tainter's argument is that modern society won't collapse in the same way as old societies, because complexity (through, for example, large-scale agriculture and fossil fuel extraction) has become the physical underpinning of human life rather than a side benefit. Many historical societies collapsed when people returned to villages and less complex traditional life. They chose to do this. Modern people won't do that, at least not on a large scale, in part because the villages are gone, and traditional ways of life are no longer directly accessible to them. This means that people in modern civilization are in a bind, and many will continue to struggle for industrial civilization even when continuing it is obviously counterproductive. Under a Decisive Ecological Warfare scenario, aboveground activists facilitate <sup>this</sup> aspect of collapse by developing alternatives that will ease the pressure and encourage people to leave industrial capitalism by choice.

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There's something admirable about the concept of protracted popular warfare that was used in China and Vietnam. It's an elegant idea, if war can ever be described in such terms; the core idea is adaptable and applicable even in the face of major setbacks and twists of fate.

But protracted popular warfare as such doesn't apply to the particular future we are discussing. The people in that scenario will never have the numbers that protracted popular warfare requires. But they will also face a different kind of adversary, for which different tactics are applicable. So they will take the essential idea of protracted popular warfare and apply it to their own situation—that of needing to save their planet, to bring down industrial civilization and keep it down. And they will devise a new grand strategy based on a simple continuum of steps that flow logically one after the other.

In this alternate future scenario, Decisive Ecological Warfare has four phases that progress from the near future through the fall of industrial civilization. The first phase is [Networking & Mobilization](#). The second phase is [Sabotage & Asymmetric Action](#). The third phase is [Systems Disruption](#). And the fourth and final phase is [Decisive Dismantling of Infrastructure](#).

Each phase has its own objectives, operational approaches, and organizational requirements. There's no distinct dividing line between the phases, and different regions progress through the phases at different times. These phases emphasize the role of militant resistance networks. The aboveground building of alternatives and revitalization of human communities happen at the same time. But this does not require the same strategic rigor; rebuilding healthy human communities with a subsistence base must simply happen as fast as possible, everywhere, with timetables and methods suited to the region. This scenario's militant resisters, on the other hand, need to share some grand strategy to succeed.

## FOOTNOTES

[1] Even the US military now recognizes this. See Macalister, "US Military Warns Oil Output May Dip Causing Massive Shortages by 2015."

[2] Aric and Derrick explored the relationships between collapse, carrying capacity, racism, and the Nazis in the closing chapters of *What We Leave Behind*.

[3] Shortly after this was written, the government of Spain cancelled \$24 billion worth of solar investments to avoid spiraling into a national debt crisis that they worried would collapse their economy.

[4] See Kevin Bales's important book *Disposable People: New Slavery in the Global Economy*.

[5] See International Union of Forest Research Organizations, "Adaptation of Forests and People to Climate Change." Also, the conversion of forests into carbon emitters because of warming, disease, logging, and fires is already happening (Kurz et al., "Mountain Pine Beetle").

[6] Science Daily, "Regional Nuclear War Could Devastate Global Climate."

[7] Science Daily, "Regional Nuclear Conflict Would Create Near-Global Ozone Hole, Says Study."

[8] Cobalt bombs are nuclear bombs with a cobalt jacket. They were the "doomsday device" in the film *Dr. Strangelove*. Regular fallout has a half-life of days, but cobalt bomb fallout would have a half-life in excess of five years. Some experts believe that cobalt bombs could literally destroy all life on Earth.

[9] Novacek et al., "The Current Biodiversity Extinction Event."

[10] See Lovelock, *The Ages of Gaia: A Biography of Our Living Earth*.

[11] Core samples from the floor of the Arctic Ocean show that about fifty-five million years ago the region was tropical because of a spike in atmospheric CO<sub>2</sub>. The biota ringing the ocean was swampy with dense sequoia and cypress trees, and "mosquitoes the size of your head." The year-round average temperature was about 23°C (74°F). Since the Arctic Circle has twenty-four-hour sunlight for most of the summer and twenty-four-hour dark for most of the winter, this average must have been associated with remarkable temperature extremes. Most of the planet was virtually uninhabitable by our standards. The growth of heat-tolerant ferns eventually sequestered carbon and returned the planet to a cooler state, but that took almost a million years to occur. See Associated Press, "Arctic Circle—Ancient Vacation Hotspot?"

[12] Congressional Research Service, "Energy Use in Agriculture: Background and Issues."

[13] Energy Information Administration<sup>3</sup> "EIA Annual Energy Review 2008," p. 3.



[14] Remember that even now, with plenty of surplus food and housing available, there are tens of millions of unsettled refugees in various parts of the world (not counting those who have been uprooted from traditional landbases and resettled in urban slums).

[15] That is net population growth, the number of daily births minus the number of daily deaths.

[16] For example, Joseph Tainter writes that "[a] society has collapsed when it displays a rapid, significant loss of an established level of sociopolitical complexity."

[17] Again, criteria here based on Tainter.